

Title (en)

TRANSITION ARRANGEMENT AND PROCESS OF A FUEL CELL SYSTEM OPERATION STATE

Title (de)

ÜBERGANGSREGELUNG UND REGELUNGSPROZESS FÜR DEN BETRIEB EINES BRENNSTOFFZELLENSYSTEMS

Title (fr)

ARRANGEMENT ET PROCÉDÉ DE TRANSITION D'ÉTATS D'OPÉRATION DANS UN SYSTÈME DE PILE À COMBUSTIBLE

Publication

EP 3134934 B1 20180221 (EN)

Application

EP 14725746 A 20140425

Priority

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Abstract (en)

[origin: WO2015162333A1] The object of the invention is a start-up transition process of a fuel cell system operation state, in which process is performed utilization of predefined first and second temperature limit for the fuel cells (103), specifying a low temperature operating state of cells below the first limit, at which presence of carbonaceous species at the cells is precluded, a transition temperature range of cells above the first and below the second limit, at which is initiated fuel flow supply to the fuel system in a mixture with air, combined with anode tail gas recirculated at a recirculation rate over 70, and an intermediate temperature operating state of the cells above the second temperature limit, at which free oxygen at the anodes is precluded, bringing temperature of the cells in the system to transition temperature range to facilitate transitions between low and intermediate temperature operating states through the transition temperature range, facilitating and safeguarding reaction between fuel and free oxygen supplied at the catalytic element whenever fuel is supplied, and control of oxygen to carbon ratio of fluid at the anode sides of cells based on predefined temperature dependent boundary values by adjustment of air to fuel ratio λ of feed stocks above 0.55 λ at transition temperature range and controlling the λ of the feed stocks based on temperature information in the intermediate temperature range and further reducing λ of the feed stocks when loading (131) is applied to the fuel cells (103) to compensate for oxygen influx through the cells to the anode sides of the cells and to control fuel utilization.

IPC 8 full level

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